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NOTES ON SOME LITTLE KNOWN FERNS OF ANDAMAN AND NICOBAR ISLANDS

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ABSTRACT

During detailed explorations of the Andaman & Nicobar Group of Islands, particularly the rich fern flora, it was found that several species were new additions to the Indian flora. While sixteen of these are recorded here, the occasion is also used to propose a new combination and to describe a new variety.

Recent intensive botanical exploration of Andaman and Nicobar Islands yielded several interesting species so far not known to occur within Indian Territory. While studying the specimens of ferns for the preparation of a modern flora of Andaman and Nicobar Islands, several such ferns were found to be additions to the Indian flora or the flora of these islands. Some of these interesting ones are enumerated below. One new combination and one new variety are also included. The species are arranged familywise with relevant synonymy and literature citations for each. Unless otherwise stated, all specimens cited are deposited in Port Blair herbarium (PBL).

GLEICHENIACEAE

Dicranopteris curranii Copeland in Philip. J. Sci. 81: 4. 1952; Holttum in Fl. Males. II, 1: 31, f. 11, 12a, 14a, 16. 1959 et Rev. Fl. Malaya, ed. 2, 2: 630. 1966.

This species, so far known from Malaya, Sumatra, W. Java, Borneo, Celebes and the Philippines is reported for the first time from India. *D. linearis* a species common in India differs as follows:

a. Both branches at each fork equal ; ultimate branches 7-12 cm wide ; first fork of each vein at its very base ; spores monolete ... *D. curranii*
b. Both branches at each fork often unequal ; ultimate branches up to 6 cm wide ; first fork of each vein distinctly above the base ; spores trilete *D. linearis*

Detailed descriptions and illustrations are given by Holttum (1959).

Specimen: N. NICOBARS: Car Nicobar Isl., *N. G. Nair* 3566.

POLYPODIACEAE

Microsorium insigne (Blume) Ching in Bull. Fan Mem. Inst. 4: 311. 1933; Holttum, Rev. Fl. Malaya 2: 174, f. 81. 1955. *Polypodium insigne* Blume, Enum. pl. Javae 127. 1828. *Pleopeltis insignis* (Blume) Bedd. Handb. ferns Brit. India 365, f. 207. 1883.

This species, so far known to occur only in Western Malesia is reported here from India for the first time. The common Indian species of this genus is *M. punctatum* and the present species differs from it in the deeply lobed fronds. Detailed descriptions

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and illustrations are given by Holttum (l.c.) and Beddome (l.c.). In W. Malesia this species is usually found in high lands at 1000-1500 m above M.S.L. However in Great Nicobar they are found at low levels below 300 m above M.S.L.

Specimen: S. NICOBARS: Great Nicobar Isl., *Balakrishnan* 5798.

Microsorium pteropus (Blume) Ching var. **minor** (Bedd.) Balakr. comb. nov. *Pleopeltis pteropus* Blume var. *minor* Bedd. Handb. ferns Brit. India 361, f. 204. 1883.

This variety was earlier known to occur only in Peninsular India and Sri Lanka. The present discovery from Andaman Islands show a very interesting disjunct distribution.

This variety differs from var. *pteropus* in fronds being simple, fertile and very rarely with one pair of fertile lobes, 7-12 cm long and 1-2 cm wide. *M. insigne* differs in fronds having 3-4 pairs of lobes.

Specimens: N. ANDAMANS: Narcondum Isl., *N. G. Nair* 6225. M. ANDAMANS: Rangat-Mayabunder, *Bhargava* 6439.

PTERIDACEAE

Pteris griffithii Hook. Sp. filic. 2: 170, t. 123A. 1858; Clarke in Trans. Linn. Soc. 1: 464. 1880; Bedd. Handb. ferns Brit. India 108, f. 57. 1883.

This species so far known only from N.E. India is recorded for the first time from these islands, showing another interesting instance of disjunct distribution. It has been collected only once from a recently disturbed virgin forest area about 20 km away from Port Blair and is obviously very rare. Detailed description and illustrations are given by Beddome (l.c.)

Specimen: S. ANDAMANS: Dhanikhari forest, *N. G. Nair* 838.

HEMIONITIDACEAE

Syngramma alismifolia (Presl) J. Sm. in Hook. Lond. J. Bot. 4: 168, t. 7-8, f. B. 1845; Bedd. Handb. ferns Brit. India 389, f. 224. 1883; Holttum, Rev. Fl. Malaya 2: 581, f. 342. 1955. *Diplazium alismifolium* Presl, Rel. Haenk. 1: 49, t. 8, f. 3. 1825. *Gymnogramma wallichii* Hook. Sp. filic. 5: 155, t. 302. 1864. *Syngramma wallichii* (Hook) Bedd. Ferns Brit. India 1: t. 153. 1866 et. Handb. ferns Brit. India 387. 1883.

This species is widespread in Malesia. The present find from Great Nicobar Island is an addition to the flora of India. Detailed description and illustrations are available in Beddome (1866, 1883) and Holttum (l.c.). While most of the S.E. Asian species including the present one of this genus have simple fronds, the common Indian species *S. vestita* and *S. fraxinea* have pinnately compound fronds.

Specimens: S. NICOBARS: Great Nicobar Isl., *Balakrishnan* 3039 & 3960.

VITTARIACEAE

Vittaria elongata Sw. var. **angustifolia** Holttum [Rev. Fl. Malaya 2: 614. 1955. *descr. angl. nom. illeg.*] ex Balakr. var nov.

A var. *elongata* differt frondibus ultra 60 cm, usque 90 cm longis, usque 6 mm latis, costis tenuibus indistinctis.

This differs from var. *elongata* in fronds being much longer, upto 90 cm long, narrower, about 5-6 mm wide and midrib slender, indistinct.

Specimens: N. NICOBARS: Car Nicobar Isl., *N. G. Nair* 2896 A (Holotypus in CAL); *ibid.* 2896 B-C. (Isotypi in PBL); *ibid.* 4510 (PBL, CAL); Katchal Isl., *Chakraborty* 4620 (PBL, CAL).

Distribution: Malaya and Nicobar Islands.

HYMENOPHYLLACEAE

Crepidomanes bilabiatum (Nees & Blume) Copeland in Philip. J. Sci. 67: 59. 1938. *Trichomanes bilabiatum* Nees & Blume, Nova Acta 11: 123, t. 13. 1823; Holttum, Rev. Fl. Malaya 2: 99, f. 36. 1955; Sledge in J. Linn. Soc. Bot. 60: 306. 1968.

This species, so far known from W. Malesia and Sri Lanka only, is recorded for the first time from India. A distinctive feature of this species is that the soral lips are rounded and not triangular as in the common Indian species *C. bipunctatum.* Detailed description and illustration are given by *Holttum* (l.c.).

Specimens: N. NICOBARS: Katchal Isl., *Chakraborty* 4628. S. NICOBARS: Great Nicobar Isl., *Balakrishnan* 5813.

Vandenboschia maxima (Blume) Copeland, Fern Fl. Philip. 1: 65. 1958. *Trichomanes maxima* Blume, Enum. pl. Javae 2: 228. 1828; Holttum, Rev. Fl. Malaya 2: 107, f. 43. 1955.

So far known to occur in S.E. Asia from S. Japan, Taiwan, Vietnam, Thailand and Malesia to Pacific Islands. A new record for India from Great Nicobar Island.

This species possesses very large fronds measuring up to 35 cm long and very long stipes up to 20 cm long as compared to the other two Indian species *V. pyxidifera* and *V. radicans* which have fronds less than 1.5 cm long and stipes less than 5 cm long. Detailed description and illustration are given by Holttum (l.c.).

Specimen: S. NICOBARS: Great Nicobar Isl., *Balakrishnan* 3972.

LINDSAEACEAE

Lindsaea chienii Ching in Sinensia 1: 4. 1929 et lc. filic. Sin. 1: t. 19: 1930; Kramer in Gard. Bull. Singapore 26: 19, f. 7. 1972. *Schizoloma chienii* (Ching) Tardieu in Amer. Fern, J. 48: 34. 1958.

So far known from S. Japan, Taiwan, S. China, Vietnam and Thailand. A new record for India from Nicobar Islands.

The pinnules are cuneate—flabellate to oblanceolate with several more or less deeply cut incisions; sori cover 2-3 (-4) vein endings and are 2-3 mm long; indusia are strongly intramarginal. Detailed description and illustration are given by Kramer (l.c.).

Specimens: N. NICOBARS: Kamorta Isl., *Bhargava* 5098; Katchal Isl., *Chakraborty* 1211 (determined by Dr. K. U. Kramer).

THELYPTERIDACEAE

Amphineuron immersa (Blume) Holttum in Nayar & Kaur, Comp. Bedd. 203. 1974. *Aspidium immersum* Blume, Enum. pl. Javae 2: 156. 1928. *Lastraea immersa* (Blume) Moore, Index filic. 89. 1858; Bedd. Handb. ferns Brit. India 234. 1883 et suppl. 53. 1892; Copeland, Fern Fl. Philip. 2: 327. 1960. *Thelypteris immersa* (Blume) Ching in Fan. Mem. Inst. Bot. 6: 306. 1936; Holttum, Rev. Fl. Malaya 2: 243. 1955.

This species so far known to occur only in Thailand, Malesia, North Queensland and New Caledonia is recorded here for the first time from India.

The genus *Amphineuron* differs from the other two common genera of Thelypteridaceae as follows:

1a Lower surface of lamina bearing spherical reddish glands; lower surface of costae bearing flat scales ... *Cyclosorus*
1b Lower surface of lamina bearing very small pale glandular hairs or larger elongate organge glands; no flat scales on lower surface of costae.
  2a Small pale glandular hairs abundant on lower surface of veins; no elongate orange glands ... *Amphineuron**
  2b Small stalked glands or larger elongate orange glands sometimes present on lower surface of lamina; elongate unicellular glands present on stalk of sporangium ... *Christella*

Specimen: S. NICOBARS: Great Nicobar Isl., *Balakrishnan* 3903.

Pronephrium triphyllum (Sw.) Holttum var. **parishii** (Bedd.) Kao in Fl. Taiwan 1: 431. 1975. *Meniscium parishii* Bedd. Ferns Brit. India t. 184. 1866. *M. triphyllum* Sw. var. *parishii* (Bedd.) Bedd. Handb. ferns Brit. India 399. 1883. *Abacopteris triphylla* (Sw.) Ching var. *parishii* (Bedd.) Ching in Bull. Fan. Mem. Inst. Bot. 8: 241. 1938; Holttum, Rev. Fl. Malaya 2: 287. 1955.

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*The small glands are larger near the apices of veins in *A. terminans*, not in *A. immersum*.

So far known from Mishmi Hills in Arunahacl Pradesh and Tenasserim in Burma, Taiwan and Malaya. A new record for Anadaman & Nicobar Islands. The typical variety is widespread in Peninsular India, N.E. India, S. China, Burma, Thailand and Malesia but not found so far in Andaman & Nicobar Islands.

This differs from variety *triphyllum* in having up to 5 pairs of lateral pinnae instead of one pair and also in narrower pinnae.

Specimen: S. NICOBARS: Great Nicobar Isl., *Chakraborty* 3237.

Trigonospora ciliata (Benth.) Holttum in Blumea 19: 29. 1971. *Aspidium ciliatum* Wall. Cat. no. 351. 1829, *nom. nud. Lastrea ciliata* Hook. Kew J. Bot. 9: 335. 1857 (*non* Liehm. 1849, *nec.* Presl, 1849). *Aspidium ciliatum* Benth. Fl. Hongk. 455. 1861. *Thelypteris ciliata* (Benth.) Ching in Bull. Fan. Mem. Inst. Bot. 6: 289. 1936; Holttum, Rev. Fl. Malaya 2: 250, f. 142. 1955. *Lastrea calcarata* (Bl.) Moore var. *ciliata* (Hook.) Bedd. Handb. ferns Brit. India 235, t. 121. 1883.

This species so far known from Nilgiris and Nepal southwards to Malaya and Sumatra is recorded for the first time from Andaman Islands.

The genus is characterised by trilete spores, bipinnatifid fronds, lower pinnae not reduced, veins free, not anastomosing and only the anterior basal vein running to sinus and not the posterior one.

Specimens: S. ANDAMANS: Miletilak, *N. G. Nair* 6230; Miletilak to Jirkatang, *N. G. Nair* 6980 (PBL, K)—identified by Dr. R. E. Holttum.

ATHYRIACEAE

Diplazium crenato-serratum (Blume) Moore, Index. filic. 121, 325. 1859. *Asplenium crenato-serratum* Blume, Enum. pl. Javae 177. 1828. *Athyrium crenato-serratum* (Blume) Milde, Bot. Zeit. 353. 1870; Holttum, Rev. Fl. Malaya 2: 561, f. 332. 1955. *D. porrectum* Wall. ex Hook. Sp. filic. 3: 250. 1860; Bedd. Ferns S. India t. 245. 1864 et Handb. ferns Brit. India 176, f. 85. 1883.

So far known only from Malesia, this is an addition to the fern flora of India. This is obviously very rare in these islands as it has been collected only once in these islands.

Fronds are simply pinnate in this species as compared to the bipinnate or tripinnate nature in the other two species, *D. asperum* and *D. esculentum* occurring in these islands.

Specimen: S. ANDAMANS: Miletilak-Jirkatang, *N. G. Nair* 6977 (PBL, K)—determined by Dr. Holttum at Kew.

ASPIDIACEAE

Heterogonium pinnatum (Copeland) Holttum in Sarawak Mus. Journ. 5: 163. 1949 et Rev. Fl. Malaya 524, f. 307. 1955. *Stenosemia pinnata* Copeland in Philip. J. Sci. I, suppl. 2: 146. 1906. *Pleocnemia membranifolia* Bedd. Suppl. ferns Brit. India 48. 1892, *pro parte.*

This species so far known only from Malaya, Sumatra, Borneo and Philippines is a new record for India.

Presl (1849) described a Philippine fern as *Nephrodium membranifolium.* Beddome misinterpreted this and gave the new combination *Pleocnemia membranifolia* for several Malaysian specimens which included two distinct species, one indusiate later named by Holttum as *Heterogonium alderwereltii,* and the other non indusiate and belonging to *H. pinnatum.* Detailed description and illustration are given by Holttum (l.c. 1955).

Specimen: L. ANDAMANS: *Bhargava* 6555.

Tectaria melanocaulis (Blume) Copeland in Philip. J. Sci. 2C: 416. 1907 et Fern Fl. Philip. 2: 306. 1960. *Aspidium melanocaulon* Blume. Enum. Pl. Javae 161. 1828; Hook. Sp. filic. 4: 53. 1862.

Known only from Sumatra, Java, Philippines and New Guinea so far, this is an addition to Indian flora.

Tectaria decurrens and *T. vasta* are the two species of the genus found in mainland India and also in Andaman & Nicobar Islands. The present species and the following two species recorded here for the first time from India can be differentiated among themselves and from *T decurrens* and *T vasta* as follows:

- 1a Fronds deeply lobed, not pinnate ; lobes interconnected by a wing which is decurrent on stipe.
  - 2a Stipes tufted ; sori situated apically on included free veins ; lowermost pinnae often forked *T. decurrens*
  - 2b Stipes rather distant, sori stiuated on reticulate anastomosing veins; lowermost pair of pinnae not forked ... *T. vasta*
- 1b Fronds pinnate or bipinnate ; stipe not winged.
  - 3a Fronds bipinnate ; pinnae further pinnately lobed ; stipe and costae dark polished black ... *I. melanocaulis*
  - 3b Fronds simply pinnate ; pinnae simple, unlobed.
    - 4a Lateral pinnae 1-2 pairs ; sori in 2 rows between main veins *T. ternifolia*
    - 4b Lateral pinnae usually more than 2 pairs ; sori in more than 2 rows between the main veins ... *T. polymorpha*

Specimens: S. ANDAMANS: Havelock Isl., *Ansari* 1402. L. ANDAMANS: *Bhargava* 3271, 4123 & 6537.

Tectaria polymorpha (Hook.) Copeland var. **cuneifolia** R. Bonap. Notes Pterid. 14: 50. 1923; Holttum, Rev. Fl. Malaya 2: 518, f. 304. 1955.

So far known from S. China, Thailand, Burma, Malaysia, Indonesia and Philippines, this is a new record for India.

This differs from the type variety *polymorpha* in the pinnae being gradually narrowed and cuneate at base instead of being rounded at base. Variety *polymorpha* is widespread in Sri Lanka, Peninsular India, N.E. India, Nepal, S. China, Burma and Thailand and also in these islands.

Specimens: N. ANDAMANS: Ramnagar, *Balakrishnan & N. G. Nair* 4927. S. ANDAMANS: Port Mout, *King's Collector* s. n. (CAL).

Tectaria ternifolia (v. A. v. R.) C. Chr. Index fil. suppl. 3: 185. 1934; Holttum, Rev. Fl. Malaya 516, f. 303. 1955. *Aspidium ternifolium* v. A .v. R. in Bull. Jard. Bot. Btzg. ser. 2, 11: 3. 1913.

This species so far known only from Malaya and northern Sumatra is a new record for India. It seems to be a rare species with only one gathering so far. Detailed description and illustration are given by Holttum (l.c.).

Specimen: S. ANDAMANS: Kodiaghat-Chiriatapu, *Balakrishnan* 6476.

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